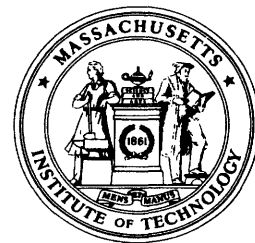


**DEFENSE AND ARMS CONTROL STUDIES
PROGRAM**

ANNUAL REPORT

ACADEMIC YEAR 1988-89

Defense and Arms Control Studies Program
Center for International Studies
MASSACHUSETTS INSTITUTE OF TECHNOLOGY



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**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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DIRECTOR'S OVERVIEW

This report marks my last year as director of the Defense and Arms Control Studies Program. Since its inception over 15 years ago the program has grown significantly in size, but has held fast to its originating goal of providing a quality, graduate level educational experience in national security issues and analysis for students who wished to be informed of both the technical and political forces that affect security. I am most proud of the bright and dedicated young men and women who have participated in the program and of the excellent faculty who have joined me in the effort to build an effective research and teaching environment in security-related studies at MIT.

I can think of no better setting for the program than MIT where interdisciplinary studies are encouraged. Half of the program's faculty have technical backgrounds (engineering and science) and half have political science backgrounds. Nearly all of the students are enrolled in the graduate programs of the political science department, but many have undergraduate training in science or engineering. Post doctoral fellows also have varied backgrounds ranging from the humanities to physics. Together we have found common cause in working on the problems of defense and arms control. The support from the MIT administration for this undertaking has always been excellent.

The graduates of the program now hold responsible positions in defense agencies, public interest groups, the universities, foundations and private firms. Their political orientations are as varied as their disciplinary backgrounds, but they all know the value of objective analysis. The only absolute requirement they found in the program was our demand that they seek out and understand the relevant facts before choosing a policy position.

Harvey M. Sapolsky, a long time member of the MIT Political Science Department and a specialist in military organizations and policies, will succeed me as director. I leave this post, but not the program as I intend to remain active in all its research and teaching activities.

* * * *

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Two conferences DACS sponsored this year illustrate well the current state of international security. One was a commemoration of the Twenty-Fifth anniversary of the Test Ban Treaty signed by the United States and the Soviet Union. The other was on the proliferation of nuclear powered submarines. As the Test Ban Conference recounted, there is reassurance that tensions between nuclear weapon states can be bounded and reduced. But as the submarine conference revealed, weapons of significant destructive power are being ever more widely dispersed, reflecting the existing fears and the potential for miscalculation among nations.

The Test Ban Treaty conference, held in November with the assistance of the American Academy of Arts and Sciences, brought together U.S. participants in the treaty making process, experts in nuclear weapons, and disarmament specialists to review the origins of the treaty, its experience, and prospects for its expansion. Concerns about the treaty's effect on the ability to maintain deterrence have proved unfounded. In fact, the treaty probably avoided constraints in weapon development that seemed certain due to environmental fears. But the treaty did contribute to confidence-building after a period of severe tension. Prospects for its expansion were discussed with the opposition of the new nuclear weapon states cited as likely being the most substantial.

The submarine conference, organized by Dr. Marvin Miller, drew naval officers, technical experts, and arms control specialists from around the world. The conference focused on the plans of Canada, Brazil, and India to acquire nuclear powered submarines and the capability to employ them. Although the plans these nations have announced seem unlikely to be realized soon (for example, Canada has recently cancelled its program to build 10 submarines due to cost considerations), they do represent a strong desire to assert national sovereignty in strategic waters and a threat to both regional rivals and the maritime activities of the U.S. Navy. Discussion included consideration of diesel and combination system alternatives to nuclear submarines and the ability of the nations to exert military power by other means. The implications of many nations acquiring sophisticated weapons even if they do not include nuclear weapons were fully explored. It does seem likely that expanding regional powers will find it irresistible to acquire some, if not all, of the symbols of military strength possessed by the superpowers. The danger of local arms races and even clashes between regional and major powers appears to be increasing with no certainty that it can be contained.

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A summary of the proceedings of the Test Ban conference has been prepared. A summary of the Submarine conference discussions and a book based on conference papers should be ready soon.

Another development of note for the program was the initiation of a publication series, Soviet Defense Notes, by the program's Soviet Security Studies Working Group which is led by Professor Stephen Meyer. The publication, which will appear monthly, provides interpretations of Soviet military activities based on a translation and analysis of Soviet materials. Unlike the various translation series that are available, Soviet Defense Notes offers original analyses of Soviet developments and is a product of the Working Group's graduate student research effort. The new publication received an immediate enthusiastic reception and has a rapidly growing circulation.

The success of the Soviet Security Studies Working Group in stimulating graduate research has caused the program to emulate the effort in several other areas. Similar groups in conventional forces, weapons technology, and defense politics will be initiated in the coming year directed by program faculty.

Several important personnel changes require mention. Theodore Postol will be joining the program as Professor of Security Studies and Technology with an appointment in the Science, Technology and Society Program, MIT's interdisciplinary effort in the science and technology studies field. Professor Postol is a nuclear engineer with extensive experience in the defense technologies field and has served as a civilian advisor to the Chief of Naval Operations. Recently he was at Stanford University where he worked with Sidney Drell in building a program in science and international security.

Steven Miller, who has been with DACS for several years as an Assistant Professor of Political Science, has left for an appointment at SIPRI in Sweden. While with DACS, Professor Miller taught core courses in arms control and helped organize the WGBH-TV series on the Nuclear Age. He will be doing research for a new book while at SIPRI.

William Durch, who was a senior Research Associate in DACS and the administrator of its summer workshop, has become an Assistant Professor of Political Science at Georgetown University. His dissertation on the ABM Treaty, completed in 1987, has been published by Ballinger Press. Amy Leiss, a

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long time administrator in the Center for International Studies at MIT and recently an administrative consultant for DACS, has retired.

Finally, I note the establishment on my initiative of a DACS Visiting Committee which held its first meeting in December. Like other research and teaching programs at MIT, DACS will benefit from having a periodic review of its achievements and plans by an outside committee composed of individuals of broad experience and training. In preparing a report which is submitted to MIT senior administrators, the visiting committees meet separately with students and faculty in order to gain a full understanding of the program's activities. The committees also serve as a sounding board for new initiatives.

Jack Ruina
Director

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DACS STRUCTURE AND ADMINISTRATION

The MIT Defense and Arms Control Studies Program is devoted to professional graduate training, to research, and to sharing its experience and findings with the broader community of interested citizens. Administratively DACS is within the Center for International Studies. Its faculty hold appointments in various MIT departments, which also offer the courses, admit the graduate students, and set the conditions for degrees.

The DACS Program was supported in the 1988-89 academic year by grants from the Carnegie Corporation, the Hewlett Foundation, the Ford Foundation, the Alfred P. Sloan Foundation, the Office of Net Assessment of the Department of Defense, the MacArthur Foundation, and the Ploughshares Fund.

The members of the DACS central staff during 1988-89 were:

Jack Ruina, Director
William Durch, Assistant Director
Frances Stefan Scanlon, Research Administrator
Amelia C. Leiss, Special Assistant to the Director

Massachusetts Institute of Technology
Defense and Arms Control Studies Program
292 Main Street
Cambridge, Massachusetts 02139

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**FACULTY AND SENIOR STAFF ASSOCIATED WITH THE DEFENSE AND ARMS
CONTROL STUDIES PROGRAM**

JACK RUINA is Professor of Electrical Engineering at MIT (since 1963) and Director of the Defense and Arms Control Program (since 1973). Dr. Ruina was an undergraduate at the City College of New York and did his graduate work at the Polytechnic Institute of Brooklyn, earning his M.E.E. (1949) and D.E.E. (1951) there. He taught at Brown University (1950-54) and the University of Illinois (1954-63); at the latter he also headed the Radar Division of the Control System Laboratory. Dr. Ruina served in the Department of Defense (1959-63) as Deputy for Research to the Assistant Secretary of the Air Force for Research, Assistant Director of Defense Research and Engineering for Air Defense, and Director of the Advanced Research Projects Agency. He also held the post of President of the Institute for Defense Analyses (1964-66). At MIT, Dr. Ruina has also held the position of Vice President for Special Laboratories (1966-70). Dr. Ruina's special interest is on strategic relations between the U.S. and the Soviet Union.

STEPHEN M. MEYER is Associate Professor of Political Science at MIT. Following undergraduate work at the State University of New York at Stony Brook, he completed his M.A. (1976) and Ph.D. (1978) at the University of Michigan. Dr. Meyer received the Helen Dwight Reed Award from the American Political Science Association (1977-78) for the best Ph.D. dissertation in international relations, politics, law, and foreign policy. He was a Post-Doctoral Fellow at the Center for International Affairs at Harvard (1978-79) and received the Alvin M. Bentley Foundation Fellowship (1977-78) and Institute for the Study of World Politics Warburg Fellowship (1977-78). Dr. Meyer's current research focusses on Soviet defense and arms control policy.

MARVIN MILLER is Senior Research Scientist with the MIT Department of Nuclear Engineering and Center for International Studies (since 1986). Dr. Miller did his undergraduate work in physics at the City College of New York, completed his M.S. at the University of Rochester (1959) and his Ph.D. at Polytechnic Institute of New York (1967). He was a member of the faculty of the Department of Electrical Engineering at Purdue University (1967-74) and at Northeastern University (1975-76) before coming to MIT as Principal Research Scientist in the Energy Laboratory (1977-84). Dr. Miller also served as William C. Foster Fellow at the U.S. Arms Control and Disarmament Agency (1984-86). In the arms control field, Dr. Miller's primary interest is in nuclear nonproliferation.

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STEVEN E. MILLER is Assistant Professor in the MIT Department of Political Science. Dr. Miller did his undergraduate work at Occidental College and received the M.A.L.D. and Ph.D. from the Fletcher School of Law and Diplomacy at Tufts University (1987). He held graduate fellowships and research assistantships at the Center for Science and International Affairs at Harvard (1977-81) and was Assistant Director of that Center (1981-84) as well as Managing Editor of its journal International Security. Since coming to MIT in 1984, Dr. Miller has continued as co-editor of International Security. Dr. Miller has broad interests in the defense and arms control field, concentrating on the political aspects.

BARRY R. POSEN joined the MIT faculty in 1987 as Associate Professor in the Department of Political Science. Dr. Posen did his undergraduate work at Occidental College and his graduate work at the University of California at Berkeley, at which he earned an M.A. (1976) and Ph.D. (1981). Prior to coming to MIT, Dr. Posen was Assistant Professor of Politics and International Affairs at Princeton University (1984-87). He has also held a number of prestigious posts: Guest Scholar at the Brookings Institution (1978-79); Graduate Student Fellow at the Center for Science and International Affairs at Harvard (1979-81); Post-Doctoral Fellow at the Center for International Affairs at Harvard (1981-82); Council on Foreign Relations International Affairs Fellow, attached to OSD/PAE-Europe Division, Department of Defense (1982-83); Rockefeller Foundation International Affairs Fellow and Guest Scholar at the Georgetown Center for Strategic and International Studies (1983-84); and Woodrow Wilson Center Fellow, Smithsonian Institution (1986). Dr. Posen's current work addresses issues relating to conventional weapons and arms control.

GEORGE W. RATHJENS became Professor in the MIT Department of Political Science in 1968 after service with the Institute for Defense Analyses (1965-68), the U.S. Arms Control and Disarmament Agency (1962-65, the Advanced Research Projects Agency of the Department of Defense (1961-62), the Office of the President's Science Advisor (1959-61), and the Weapons Evaluation Group of the Department of Defense (1953-59). Dr. Rathjens received his B.S. from Yale University (1945) and completed his Ph.D. at the University of California at Berkeley (1951). He also served as Assistant Professor of Chemistry at Columbia University (1950-53). Dr. Rathjens is active in a number of professional associations, including the Council for a Livable World of which he is Chairman and the Federation of American Scientists of which he is Sponsor, Councilor, and Past Chairman. Dr. Rathjens major focus is on the role of nuclear weapons in Soviet-American relations and on nuclear arms control.

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HARVEY M. SAPOLSKY is Professor of Public Policy and Organization in the MIT Department of Political Science, having joined the faculty in 1966. Dr. Sapolsky completed his B.A. at Boston University (1961) and earned his M.P.A. (1963) and Ph.D. (1967) at Harvard University. He has worked in several public policy areas, most notably health and defense where his work examines the effects of institutional and bureaucratic politics on policy outcomes. Professor Sapolsky has consulted for numerous government agencies and firms. In July 1989 he will assume the directorship of the DACS program.

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RESEARCH STAFF AND VISITING SCHOLARS

OAKES AMES was a Visiting Scholar with the DACS Program for 1988-89. He came to MIT from his position as President of Connecticut College, a position he assumed in 1974 after a distinguished career in theoretical physics. In January 1989 Ames was named Executive Director of the New York Academy of Sciences.

WILLIAM DURCH, associated with the DACS Program for several years as a graduate student, was appointed a Research Associate upon earning his Ph.D. in January 1988. Dr. Durch organized and directed the Summer Workshops on Nuclear Weapons Policy for the past seven years.

KENNETH FREEMAN will become a Post-Doctoral Fellow with the DACS Program when he completes his Ph.D. from Kings College, London University in the fall of 1989, with a thesis on combat effectiveness of guided weapons. His earlier postgraduate degrees were from Harvard in public administration and business administration.

LISBETH GRONLUND served as a Post-Doctoral Fellow with the DACS Program; she completed her Ph.D. in physics at Cornell in 1988 in the field of condensed matter theory, with a strong interest in arms control policy.

DAVID LANNING is Professor of Nuclear Engineering at MIT. He is collaborating with Dr. Marvin Miller in the study of the implications for nuclear weapons proliferation of the acquisition of nuclear submarines by non-nuclear states.

BENJAMIN MILLER was appointed a Post-Doctoral Fellow with the DACS Program for the 1988-89 academic year. He received his Ph.D. from the University of California at Berkeley, with a thesis on great power roles in crisis management in Third World conflicts. His undergraduate work was at Haifa University and he has an M.A. from the Hebrew University of Jerusalem.

HENRY NIEDERGESES served as Visiting Air Force Associate with the DACS Program. Lt. Colonel Niedergeses, in the Air Force since 1969, has had a long career in military air transport (C-141) and has served tours in Vietnam and in Europe as an operations officer.

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RICHARD RHODES was a Fellow with the DACS Program for 1988-89. He is an independent writer whose most recent book, The Making of the Atomic Bomb, was awarded the Pulitzer Prize for non-fiction and the National Book Critics Circle Award for general non-fiction.

WOLFGANG SCHLOR, a Visiting Scholar with the DACS Program during 1988-89, is a Ph.D. candidate at the Free University of Berlin. His thesis is on the impact of personal attributes on the foreign policies of US Presidents.

JONATHAN SHIMSHONI served as a Post-Doctoral Fellow with the DACS Program from September 1988 through February 1989. He received his Ph.D. from Princeton in 1986 in security studies; his M.A. and undergraduate degrees were also from Princeton. Colonel Shimshoni is in the Israel Defense Forces Field Artillery. His research and publications are in the field of conventional deterrence.

RAJU G. C. THOMAS was a Fellow with DACS during 1988-89 while on sabbatical leave from Marquette University where he is a Professor of Political Science. Dr. Thomas received his Ph.D. from the University of California at Los Angeles and has graduate and undergraduate degrees from the University of Southern California, the London School of Economics, and the University of Bombay.

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GRADUATE STUDENTS IN RESIDENCE: 1988-89 ACADEMIC YEAR

Ph.D. Candidates--Post-Generals:

<u>Name</u>	<u>Undergraduate Institution and Field Research Interest</u>
Jeffrey Checkel	Cornell University -- Physics Soviet Foreign-Policy Decisionmaking
Owen Cote	Harvard University -- Social Studies An Analysis of the Sources of American Nuclear Doctrine
Sybil Francis	Oberlin College -- Chemistry History and Analysis of the Politics of the National Weapons Labs
*Thomas Homer-Dixon	Carleton University -- Political Science Empirical and Philosophical Study of Theory of Conflict
Shannon Kile	Rice University -- History The Changing Security Calculus on NATO's Northern Flank
Peter Liberman	Reed College -- Philosophy Exploitation of Industrial Economies by Foreign Powers
Katherine Magraw	Yale University -- History Semi-Tough: The Democrats' Defense Dilemma
Richard Phillips	University of Mississippi -- Political Science Technological Innovation and Operational Tactical Adaptation in the Soviet Military
Laura Reed	Harvard University -- Sociology/ Anthropology Alternatives to the Cold War: Paths Not Taken
Jeffrey Sands	Amherst College -- American Studies Soviet Decision Making and Assessments of the West

*Ph.D. Recipient June 1989

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Judyth Twigg	Carnegie Mellon University -- Physics University of Pittsburgh -- Political Science Comparative Military Economics and Weapons Acquisition Issues
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Robert Zirkle	University of Illinois -- Physics, Political Science Structural Innovation in the Military: The Case of the Army's Light Infantry Divisions
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Pre-Generals

<u>Name</u>	<u>Undergraduate Institution and Field</u>
John Beldecos	Princeton University -- Politics
John Brown	US Military Academy -- Physics
Larry Brown	Howard Payne University -- Political Science. University of New Mexico -- Management, Political Science
Dean Cheng	Princeton University -- Politics
Neta Crawford	Brown University -- Independent Study
Eric Heginbotham	Swarthmore College -- Political Science
Christopher Herrick	Cornell University -- Government, Computer Science
Steven Flank	Cornell University -- Physics
Heinz Kern	Goethe Institute --Economics Johns Hopkins University -- International Relations
Eric Labs	Tufts University -- Classics
Mark Lindemann	Brown University --
Daniel Lindley	Tufts University -- International Relations, French
Marcia Morris	Boston University -- Political Science

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Brian Nichiporuk	University of Chicago -- Political Science
Kathleen Sgamma	MIT -- Political Science
Timothy Temerson	Grinnell College -- Political Science
Jeanette Voas	University of Virginia -- Russian Studies University of Michigan -- Soviet Studies
Victor Vescovo	Stanford University -- Political Science, Economics

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DEGREE RECIPIENTS IN DEFENSE AND ARMS CONTROL POLICY: 1988-89

Joseph Arminio	Ph.D. 1989	The Grand Strategy of the Han Empire in the Second Century B.C.
John Brown	S.M. 1989	Military Adequacy? Inferences From a Computer Model of Alternative NATO Defense
Marco Carnovale	Ph.D. 1989	The Control of NATO Nuclear Forces in Europe
Thomas Graham	Ph.D. 1989	The Politics of Failure: Strategic Nuclear Arms Control, Public Opinion, and Domestic Politics in the United States - 1945-1980
Christopher Herrick	S.M. 1989	The NATO Alarm and Mobilization System
Thomas Homer-Dixon	Ph.D. 1989	They and We: An Empirical and Philosophical Study of a Theory of Social Conflict
Robert Snyder	S.M. 1989	The Politics of Close Air Support
Victor Vescovo	S.M. 1989	The Balance of Air Power in Central Europe: Quantitative and Qualitative Assessment

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DACS VISITING COMMITTEE

Paul Doty	Harvard University
Marvin Goldberger	Institute for Advanced Studies, Princeton University
Edward Jayne	MacDonald Douglas
Robert Jervis	Columbia University
Carl Kaysen	MIT
Catherine Kelleher	University of Maryland
Michael May	Lawrence Livermore National Laboratory
John Mearsheimer	University of Chicago
Condoleeza Rice	Stanford University
Richard Solomon	Policy Planning, U.S. Department of State
John Steinbruner	Brookings Institution
Jerome Wiesner	MIT

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1988-1989

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MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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Rathjens, George, "Global Security on Approaching the 21st Century, Current History, January 1989.

Rathjens, George, "American Defense Policy in the Post-Reagan Era," Aspen Strategy Group, Aspen, Colorado, forthcoming.

Rhodes, Richard, "Manmade Death: A Neglected Mortality," Journal of the American Medical Association, August 1988.

Rhodes, Richard, "Notes and Comment": the 50th anniversary of the discovery of fission, New Yorker, 26 December 1988.

Rhodes, Richard, Review of War and Peace in the Nuclear Age by John Newhouse, Boston Sunday Globe, 22 January 1989.

Ruina, Jack, and Matthew Bunn, "Why Not Have Deep Reductions and SDI Too?" Christian Science Monitor, January 11, 1988.

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Ruina, Jack, "Comments on SDI Technologies and Systems," in Klaus Gottstein, ed., SDI and Stability, Nomos Verlagssessellschaft, Baden-Baden, FRG, 1988.

Rumer, Eugene, "The Third World in Soviet Professional Military Thinking," in Kurt Campbell and Neil MacFarlane, eds., Soviet Policy Toward the Third World, forthcoming.

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Sands, Jeffrey, "Soviet Military Assessments of NATO Alliance Cohesion," Soviet Security Studies Working Group Report No. 88-1, 1988.

Sapolsky, Harvey, "Military Support for Academic Research in the United States," Paper delivered at joint meetings of the U.S. and British History of Science Societies, Manchester, England, July 1988.

Sapolsky, Harvey, "The Future of Technology Policy Studies," STS Newsletter, Massachusetts Institute of Technology, Cambridge, MA, March 1989.

Schloer, Wolfgang, "The Debate on Barrier Defenses in NATO," in NATO Into the 1990's: Critical Issues for Maintaining Conventional Defense, Conventional Forces Working Group, Harvard University, forthcoming.

Shimshoni, Jonathan, "1914, the Cult of the Advantage, and Military Entrepreneurship: A Case Against Technological Determinism," in progress.

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Thomas, Raju G. C., "Nuclear Energy and the Threshold Nuclear Weapons States," in Energy, Security and Nuclear Proliferation, Thomas and Ramberg, eds.

Thomas, Raju G. C., "India's Nuclear Energy Programs: Capabilities and Intent," in Energy, Security and Nuclear Proliferation, Thomas and Ramberg, eds.

Thomas, Raju G. C., with S. Paranjpe, "India and South Asia," in Threat Perceptions and Strategic Response of the Regional Hegemons, David J. Myers and Trond Gilberg, eds., Duke University Press, Durham, North Carolina, 1989.

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MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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Zirkle, Robert, The Balance of Forces, Briefing Paper, Union of Concerned Scientists, April 1988.

Zirkle, Robert, et al., Presidential Priorities: A National Security Agenda for the 1990s, Union of Concerned Scientists, 1988.

Zirkle, Robert, Peter Clausen, and Michael Brower, The ASAT Threat: Safeguarding American Satellites in the 1990s, Union of Concerned Scientists, March 1988.

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MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
ANNUAL REPORT, 1988-89

DEFENSE AND ARMS CONTROL STUDIES COURSES

[Except where noted, DACS courses are
offered only at the graduate level.]

DEFENSE POLITICS

Harvey Sapolsky

The politics affecting US defense policies in historical and contemporary perspectives, including intra- and inter-service rivalries, civil-military relations, contractor influences, congressional oversight, and peace movements.

STATECRAFT, STRATEGY, AND WAR

Steven Miller

Major thinkers and major issues relating to war as an instrument of policy, emphasizing strategy, deterrence, and problems of managing force effectively.

THEORY AND POLITICS OF ARMS CONTROL

Steven Miller

Evolution of arms control and disarmament policy and approaches, including critical review of major negotiating efforts and agreements, including examination of domestic political factors.

NUCLEAR WAR: THREAT AND AVOIDANCE

Marvin Miller,
Philip Morrison,
George Rathjens,
Jack Ruina

Undergraduate course offered in Political Science, Humanities, Science, Technology and Society, and school-wide in the School of Engineering. The science, technology, politics, and strategic concepts relating to nuclear weapons and weapons systems; nuclear proliferation; nuclear arms race; successes and failures of nuclear arms control; new military technology and prospects for the future.

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
ANNUAL REPORT, 1988-89**

**SEMINAR IN ARMS CONTROL
AND DEFENSE POLICY**

George Rathjens,
Jack Ruina

Assessment of post-1945 arms control efforts and major defense policy issues. Emphasis on technical, political, economic, and military aspects of current issues, which in recent years have included missile deployment in Europe, INF negotiations, START, space-based missile defense.

FOUNDATIONS OF SECURITY STUDIES

Barry Posen

Theories and conceptual frameworks that form the intellectual basis of security studies as an academic discipline: balance of power theory, organization theory, civil-military relations, the relationship between war and politics.

MILITARY FORCES AND FOREIGN POLICY

Stephen Meyer

Comparative examination of US and Soviet defense and foreign policies and the use of their military forces since 1945; historic cases of deterrence of central war, coercive diplomacy, crisis management, limited intervention; implications of military force posture and planning and military strategy. Offered at graduate and undergraduate levels.

AMERICAN SECURITY IN THE NUCLEAR AGE

Steven Miller

Evolution of US security policy since 1945, with a focus on matching capabilities and commitments: postwar demobilization, assumption of global responsibilities, Korean War rearmament, nuclearization of American defenses in the 1950s, McNamara revolution, Vietnam and the problem of intervention, Nixon Doctrine, current issues. Offered at graduate and undergraduate levels.

COMPARATIVE DEFENSE MANAGEMENT

Harvey Sapolsky

Management issues in the organization, equipping, and direction of military forces, with special attention to the politics, administration, and effects of the weapons procurement process; comparisons of the US, Europe, Israeli, and Soviet experiences.

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
ANNUAL REPORT, 1988-89**

STRATEGIC NUCLEAR FORCES

Stephen Meyer

Assessment of strategic nuclear forces; development of force requirements and methods for analyzing alternative force postures in terms of missions, effectiveness, and cost; evolution of nuclear strategy and forces against the backdrop of the history of US and Soviet strategic competition.

US GENERAL PURPOSE FORCES

Barry Posen

Concept of Grand Strategy as a system of interconnected political and military ends and means; topics include US grand strategy, organization of US military, defense budget, ground forces, tactical air forces, naval forces, power projection forces, control of escalation. Offered at graduate and undergraduate levels.

**COMPARATIVE GRAND STRATEGY
AND MILITARY DOCTRINE**

Barry Posen

Grand strategies and military doctrines of Britain, France, Germany, and Russia from last 19th to mid 20th centuries; strategic developments in period preceding World Wars I and II; factors influencing national strategies; judging the quality of grand strategies; consequences of grand strategies of different types.

**NUCLEAR WEAPONS AND ARMS CONTROL:
TECHNOLOGY AND POLICY ISSUES**

George Rathjens,
Jack Ruina

Offered in Political Science, Humanities, Science, Technology and Society, and school-wide in the School of Engineering. Weapons systems development and arms control efforts, with focus on interaction of technological factors, strategic concepts, intelligence assessments, political judgment; topics include: nuclear weapons technology and effects, nuclear proliferation, strategic offensive and defensive weapons, current strategic arms programs.

MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
ANNUAL REPORT, 1988-89

QUANTITATIVE APPROACHES
TO DEFENSE PROBLEMS

George Rathjens

Systems analysis of arms control and defense policy choices; cost benefit criteria, analytical approaches, critique of applications. Offered at graduate and undergraduate levels.

SOVIET DEFENSE PLANNING

Stephen Meyer

Political, economic, military determinants of Soviet military policy; military doctrine, strategy, organization, weapons procurement from perspective of Soviet military planners.

RESEARCH SEMINAR IN SOVIET
SECURITY STUDIES

Stephen Meyer

Historical and contemporary issues in Soviet defense planning.

SEMINAR ON EUROPEAN SECURITY

William Griffith

MBFR negotiations, new weapons systems; US and European differences on: estimates of Soviet policy and intent, INF treaty, energy crisis, foreign trade, Middle East policy.

MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
ANNUAL REPORT, 1988-89

DACS SEMINARS 1988-89
GENERAL SEMINARS

1988

- September 28 "Reflections on the Palestinian Uprising"
- Jonathan Shimshoni
DACS Visiting Fellow
Colonel, Israel Defense Force
- October 6 "Implications of the New German-German
Rapprochement"
- Anne-Marie LeGloanec
MacArthur Visiting Fellow
- October 13 "Reflections on the Evolution of Israeli Military
Doctrine"
- Ariel Levite
Jaffe Center for Strategic Studies
Tel Aviv University
- October 19 "Genuflections at the JCS Altar"
- Henry Niedergeses
US Air Force Associate
- October 25 "Election 88: Defense Issues and Choices"
- Marvin Kalb
Director, Center on the Press, Politics and Public
Policy
John F. Kennedy School of Government
Harvard University
- November 8 "The Making of the Atomic Bomb"
- Richard Rhodes
Author
Visiting Sloan Fellow
- November 16 "American Grand Strategy: Why Europe Matters and
the Third World Doesn't"

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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Steve Van Evera
Adjunct Fellow
Harvard University
Center for Science and International Affairs

November 28 "Negotiating Conventional Arms Reductions and
Stability for Europe"

Jane M. O. Sharp
Stockholm International Peace Research Institute

1989

January 25 "1914 and the Cult of the Advantage: A Case Against
Technological Determinism"

Jonathan Shimshoni
DACS Visiting Fellow
Colonel, Israel Defense Force

January 26 "Understanding Gorbachev's Russia"

Jeffrey Checkel
Ph.D. Candidate, Department of Political Science
MIT

February 15 "International Relations Theory Revisited:
Explaining Cooperation Under Anarchy"

Benjamin Miller
Post-Doctoral Fellow, DACS

February 22 "Reducing the Fissile Material in the U.S. and
Soviet Weapons Stockpiles"

Oakes Ames
Visiting Scholar, DACS

March 1 "Banning the Bomb in India"

Raju G. C. Thomas
Visiting Scholar, DACS
Professor of Political Science, Marquette University

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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- March 15 "Negotiating Chemical Disarmament"
- Matthew S. Meselson
 Department of Biochemistry
 Harvard University
- April 12 "The State of the Art in Peace Research"
- Jyrki Kakonen
 Director, Tampere Peace Research Institute,
 Finland
- April 19 "War and Peace in the Nuclear Age"
- John Newhouse
 Author
- April 26 "Doctrinal Changes in the Soviet Military"
- Bernard Trainor
 Defense Correspondent, The New York Times
- May 10 "Defense Acquisition Management Reform"
- J. Ronald Fox
 Harvard Business School

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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RESEARCH SEMINARS ON EUROPEAN SECURITY AFFAIRS -- 1988-89

1988

- October 3 "A Modelled Alternative Defense Concept"
- John C. Brown
Ph.D. Candidate, Department of Political Science
MIT
- October 17 "Obstacles to Co-operation: Early Proposals for
the Political Settlement of Germany"
- Laura Reed
Ph.D. Candidate, Department of Political Science
MIT
- October 24 "NATO's Montebello Decision: Mystery, Deception,
or Fact?"
- Larry Brown and Heinz A. J. Kern
Ph.D. Candidates, Department of Political Science
MIT
- October 31 "Discriminate Deterrence and European Security
Interests"
- Samuel P. Huntington
Center for International Affairs
Harvard University
- November 7 "Would ATBMs Be Cost-Effective at Protecting NATO's
Air-Defenses from Conventional Ballistic Missile
Attacks"
- David Blair
Center for International Affairs and
Center for Science and International Affairs
Harvard University
- November 14 "Modelling Conventional Disarmament"
- William J. Durch
Research Associate, DACS
MIT

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November 28 "Negotiating Conventional Arms Reductions and
Stability for Europe"

Jane Sharp
Stockholm International Peace Research Institute

December 5 "Does Conquest Pay? The Case of Occupied France"

Peter Liberman
Ph.D. Candidate, Department of Political Science
MIT

1989

February 13 "An Alternative Force Structure for the U.S. Army
in Europe"

Charles Knight
Institute for Defense and Disarmament Studies

February 27 "Emerging Technologies and their Doctrinal
Applications"

Wolfgang Schloer
Visiting Pre-Doctoral Fellow, DACS
MIT

March 6 "The Future of Political and Military Co-operation
in Europe"

William E. Griffith
Professor, Department of Political Science
MIT

March 8 "Principles of Alternative Defense: Inferences from
an Analytic Computer Model"

John C. Brown
Ph.D. Candidate, Department of Political Science
MIT

March 13 "Perspectives of Common Security Regimes in Europe"

Pam Solo
Institute for Peace and International Security

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- March 20 "NATO's Out-of-Area Challenges"
- Douglas T. Stuart
Professor of Political Science, Dickinson College
- April 10 "The Future of Nuclear Battlefield Weapons in Europe"
- Lisbeth Gronlund
Mellon Fellow, STS, MIT
and
David Wright
Harvard University
- April 24 "Combat Effectiveness of Guided Weapons for the Battle for Air-Superiority"
- Kenneth Freeman
Ph.D. Candidate, Department of War Studies, King's College London University, England

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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DEFENSE SCIENCE DINNER SEMINARS

November 1, 1988	Mr. Robert Everett Former President, The Mitre Corporation Chairman, Defense Science Board Member, Strategic Defense Initiative Advisory Committee	How We Might Think About Developments in The SDI Program
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DACS CONFERENCES

MIT/HARVARD Summer Program on Nuclear Weapons and Arms Control

For the seventh consecutive year, the Defense and Arms Control Studies Program, in conjunction with the Center for Science and International Affairs at Harvard University hosted forty-nine college faculty from the US, Canada, Norway, England, West Germany, Yugoslavia, Spain, Japan and the Peoples Republic of China. Sponsored by the Alfred P. Sloan, Jr. Foundation, this intensive, two-week resident program is designed to give participants a firm grounding in the technical aspects of nuclear arms control issues, plus an opportunity to meet and get to know their peers. Participants come from a wide range of backgrounds. The lecturers were primarily from the faculty and staff of the Defense and Arms Control Studies Program at MIT and the Kennedy School of Government at Harvard.

The Limited Test Ban Treaty at 25

In commemoration of the twenty-fifth anniversary of the Limited Test Ban Treaty, the Defense and Arms Control Studies Program, with the assistance from the American Academy of Arts and Science, sponsored a conference in November of 1988 to explore the legacy and lessons of the LTBT. The three day conference, held in Cambridge at the Academy, brought together about 20 eminent scientists and researchers to informally discuss some of the technical, political and military issues surrounding the LTBT and subsequent efforts to limit testing. Conference participants were largely drawn from the ranks of former Executive branch officials who were involved in test ban negotiations and scientists who were or are now involved in nuclear weapons.

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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Nuclear Powered Submarines in Non-Nuclear Weapons States

In the Spring of 1989 the DACS Program hosted a conference on Nuclear Powered Submarines in Non-Nuclear Weapons States which drew participants from western Europe, South America, India, Canada, and the United States. The conference focused on plans by Canada, Brazil, and India to acquire nuclear powered submarines. Naval officers, technical experts, and arms control specialists attending the conference discussed the impact of these submarine acquisitions on regional rivals and on the maritime activities of the U.S. Navy. Discussions also included consideration of alternatives to nuclear submarines and the ability of these nations to exert military power by other means.

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**OUTSIDE PROFESSIONAL ACTIVITIES
OF DACS FACULTY AND RESEARCH STAFF
1988-89**

WILLIAM DURCH

October 1988	Presentation on "Modelling Conventional Arms in Europe," at the Institute for Defense Analyses, Conference on NATO at 40, Alexandria, Virginia
December 1988	Presentation at the Center for Strategic and International Studies and also at the Interagency Working Group on the Conventional Stability Talks, Washington, D. C. on the subject of Conventional Arms in Europe
January 1989	Seminar at the Carnegie Endowment for International Peace, Washington, D.C. on the results of research on the conventional balance and arms control in Europe
February 1989	Presentation at the Conventional Forces Working Group, Center for Science and International Affairs, Harvard University, Cambridge, Mass
March 1989	Research presentation to the Joint Chief of Staff/J8, Washington, D. C.
April 1989	Presentation at the Conventional Force Modelling Working Group of the Committee on International Security and Arms Control of the National Academy of Sciences, at the Brookings Institution, Washington, D. C.
June 1989	Speaker at the Aspen Institute, Berlin, FRG on Arms Control in Europe

**MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
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KENNETH FREEMAN

October 1988 Seminar to the Studies Department of the Royal United Services Institute for Defence Studies in London, England, on the effective use of the US and British open literature as the basis for analysis of defence related issues

November 1988 Presentation on "The Combat Effectiveness of Guided Weapons in the Falklands War and the 1982 Israeli Invasion of Lebanon," to the Studies Department, Royal United Services Institute for Defence Studies, London, England

LISBETH GRONLUND

October 1988 Participant in Workshop on "The Role of Scientists and Technologists in the Making of Security Policy," University of Illinois, Urbana, Illinois

April 1989 Participant in Workshop on "The Role of Scientists and Technologists in the Making of Security Policy," Cornell University, Ithaca, New York

Talk on "Physicists and the Societal Implications of their Work" and participation in a panel discussion on "Radicalism, Militarism and the University," at the List Visual Arts Center, Cambridge, Massachusetts, in conjunction with an exhibit by artist Margia Kramer entitled "Looking at Militarism"

June 1989 Participant in week-long National Security Seminar at the Army War College, Carlisle, Pennsylvania

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STEPHEN MEYER

- July 1988 Testimony before the Defense Policy Panel of the House Armed Services Committee, Washington, D. C. on "The Impact of Gorbachev's New Political Thinking on Soviet Military Programs and Operations."
- January 1989 Private briefing with President George Bush and three other academics. Informal discussion of the Soviet Union's foreign and domestic policy, Kennebunkport, Maine.
- March 1989 Lecture at the U.S. National Defense University, Washington, D. C. on "Soviet Thinking on Nuclear War--How Might a Nuclear War Begin? How Might It Be Fought?"
- April 1989 Testimony before the Senate Armed Services Committee, Washington, D. C. on "Changing Military Doctrine and Strategy"

Private seminar with Secretary of State James Baker on Soviet foreign and domestic policies. Also present: National Security Advisor Scowcroft, CIA Director Webster, and Defense Secretary Cheney, US Department of State, Washington, D. C.

BENJAMIN MILLER

- November 1988 Spoke at the University of Massachusetts, Amherst on "Superpower Cooperation in the Settlement of the Arab-Israeli Conflict"
- December 1988 Talk at The University of Maryland, College Park, on "Explaining Great Power Conflict Management"
- April 1989 Participant in Harvard University Workshop on "Resolution of the Israeli-Palestinian Conflict"

MARVIN MILLER

- August 1988 Presentation to the Staff of the Oak Ridge National Laboratory, Oak Ridge, Tennessee, on the "Proliferation Implications of Nuclear Powered Submarines"

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September 1988 Seminar at the University of Montreal, Department of Physics, Montreal, Canada, on "Nuclear Powered Submarines for Non Nuclear Weapons States"

December 1988 Paper presented on "Tritium Verification and Safeguards," at the Tritium Verification Workshop, American Academy of Arts and Sciences, Cambridge, MA

December 1988 Seminar at the Bhabha Center for Nuclear Research, Bombay, India, on "Innovative Reactor Designs"

May 1989 Seminar at the Center for Energy and Environmental Studies, Princeton University, Princeton, New Jersey, on "Nuclear Powered Submarines and Global Security"

Presentation at the Jaffee Center for Strategic Studies, Tel Aviv University, Tel Aviv, Israel on "Nuclear Proliferation in the Middle East"

STEVEN MILLER

June 1988 Presented paper, "Is Arms Control a Path to Peace?", at "Toward the Twenty-first Century: An Investigation of the Roads to Peace," Conference held at the United States Institute of Peace, Airlie House, Airlie, Virginia

Presented paper, "The Prospects for Naval Arms Control," at the 52nd Pugwash Symposium on "Naval Forces: Arms Restraint and Confidence-Building," Oslo, Norway

July 1988 Participant, Workshop on "Northern Perspectives on Strategy and Cooperation in the Arctic Region," organized by the Tampere Peace Research Institute, held in Petajaniemi, Finland

Presentation on "Military Issues in Northern Waters," at the Nordic Security Policy Summer Academy: Nordic Peace 2000, Kuhmo, Finland

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August 1988 Participant, Workshop on "The Sarajevo Fallacy: On the Historical and Intellectual Origins of Arms Control Theology," held at the United States Institute of Peace, Washington, D. C.

October 1988 Presentation on "Arms Control in the Reagan Administration: An Appraisal," at the Institute for Social Research, University of Michigan, Ann Arbor, Michigan

 Presentation on "Naval Interactions in the Arctic," at the International Conference on Arctic Cooperation, organized by the Canadian Institute for International Peace and Security, Toronto, Canada

 Participant, Conference on "Unilateral and Independent Approaches to Arms Control," organized by the Center for International and Strategic Affairs, UCLA and the Center for National Security Studies, Los Alamos National Laboratory, held at the American Academy of Arts and Sciences, Cambridge, MA

November 1988 Presentation on "American Foreign and Defense Policy After Reagan," Stockholm International Peace Research Institute, Solna, Sweden

 Presentation on "Strategy and Arms Control in the Arctic," Workshop on "Alternative Security and Development in the Arctic," organized by the Tampere Peace Research Institute and held in Ivalo, Finland

January 1989 Presentation on "The Origins and Limitations of Modern Arms Control Theory," Security Studies Seminar, Department of Political Science, University of Chicago, Chicago, Illinois

February 1989 Participant, Workshop on "The Future of Arms Control," organized by the Committee on International Security Studies, American Academy of Arts and Science, Cambridge, MA

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February 1989 Presented paper on "Strategic Developments in the Arctic," at Conference on "Legal Problems in the Arctic Regions," The Institute for Nordic Law, The University of Lapland, Rovaniemi, Finland

March 1989 Presentation on "The Superpowers and Stability in Northern Europe," Conference on "Common Security in the North: Threats and Answers," organized by the Nordisk Forum for Sikkerhetspolitikk, Oslo, Norway

Participant, annual International Studies Association Meeting, London, England

April 1989 Participant, conference on "Planning for Defense and Arms Control: The Quest for Integration," organized by the Washington Strategy Seminar and the Atlantic Strategy Forum, King's College, London, England

Participant, session with General Bengt Gustafson, Commander of Sweden's Armed Forces, Boston, MA

May 1989 Presentation, "The Maritime Strategy and NATO's Northern Flank, Center for International and Strategic Affairs, Stanford University, Stanford, California

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BARRY POSEN

June 1988	Participant, Panel on "Assessing Military Power," Strategy and National Security Conference, organized by the Center for International Affairs, Harvard University, held at the Wianno Club, Cape Cod, Massachusetts
July 1988	Speaker, Military Analyst Seminar at the Central Intelligence Agency Headquarters, Washington, D. C.
October 1988	Participant, conference on "Arms Control Without Negotiation: The Role of Unilateral/Independent Initiatives," organized by the UCLA Center for International Strategic Affairs, and held at the American Academy of Arts and Sciences, Cambridge, MA
November 1988	Talk at the Institute for Social and Policy Studies, Yale University, New Haven, Connecticut
January 1989	Seminar at the University of Chicago's Program on International Politics, Economics and Security Participant, Workshop on "Defense-Oriented Restructuring of Ground Forces," sponsored by the Institute for Defense and Disarmament Studies, Brookline, MA
March 1989	Lecture, the National War College, National Defense University, Washington, D. C.
April 1989	Participant, meeting on "Military Organization and Nuclear Force," National Academy of Sciences, National Research Council, Commission on Behavioral and Social Sciences and Education Talk, "Escalation from Conventional to Nuclear in Europe," at University Seminar on Arms Control, Columbia University, New York, New York

May 1989

MIT DEFENSE AND ARMS CONTROL STUDIES PROGRAM
Talk, "The Conventional Arms Race", 1988-89

Workshop on Strategy, University of California
at Los Angeles, California

GEORGE RATHJENS

June 1988

Taught course on war/peace issues at the
University of California, Irvine, California

Participant, meeting of the Aspen Strategy
Group, Venice, Italy

Participant, the Pugwash Meeting on Science
and World Affairs in Geneva, Switzerland

Lecturer, MacArthur Foundation Journalists'
Course, Talloires, France

Lecturer, the Polemologisch Institute,
Dubrovnik, Yugoslavia, on "Nuclear Deterrence,
Arms Control and Peace"

August 1988

Taught short course on war/peace issues, Burg
Schlaining, Austria

Participant, the Pugwash Conference held in
Dagomys, USSR

Participant, the Aspen Strategy Group, Aspen
Colorado

January 1989

Taught short course for college teachers on
war/peace issues at the University of Miami,
Miami, Florida

February 1989

Lecture, Illinois College, Jacksonville,
Illinois, on Defense and Arms Control Issues

March 1989

Seminar, York University, Toronto, Canada, on
"Nuclear Proliferation in South Asia"

April 1989

Lecture, Princeton University, Princeton, New
Jersey, on Arms Control

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May 1989	Testimony before the House of Representatives Armed Services Committee Panel on Department of Energy Defense Nuclear Facilities
RICHARD RHODES	
September 1988	Lecture, the Colloquium on the 50th Anniversary of Fission, American Chemical Society, Los Angeles, California
October 1988	Lecture, the University Forum, University of Kansas, Lawrence, Kansas
	Lecture, the University of Southern Mississippi, Hattiesburg, Mississippi
November 1988	Lecture, the Plasma Physics Division of the American Physical Society in Hollywood, Florida
	Guest Lecturer, the Sunday Scholars Series, Washington Hebrew Congregation, Washington, D. C.
	Lecture, the Center for the Book, Library of Congress, Washington, D.C.
	Nonfiction judge, the National Book Awards, New York, New York
January 1989	Speaker, the Cambridge Forum, Cambridge, Massachusetts
	Panelist, National Book Critics Circle, New York, New York
February 1989	Lecturer, the Harvard Physics Department Colloquium, Harvard University, Cambridge, MA

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February 1989	Presented 1989 Wellington Lecture, Science Pioneers, Kansas City, Missouri
March 1989	Rapporteur, the National Science Foundation Collaboratory Conference held at The Rockefeller University, New York, New York
April 1989	Lecture, the Friday Forum, Phillips Academy, Andover, Massachusetts Panelist, Nonfiction Conference, University of Massachusetts School of Journalism, Amherst, Massachusetts
May 1989	Lecture, Luncheon Seminar, Center for Science and International Affairs, Kennedy School of Government, Harvard University, Cambridge, MA
JACK RUINA	
June 1988	Participated in Pugwash Conference on World Affairs Workshop on Nuclear Weapons in Europe, Geneva, Switzerland
August 1988	Participant at Pugwash Conference on World Affairs, Dagomys, USSR
September 1988	Participant, Belmont Conference on Nuclear Test Ban Policy, National Resources Defense Council
October 1988	Participated in University of Illinois Conference on Science Advise
January 1989	Taught short course for college teachers on war/peace issues at the University of Miami, Miami, Florida
April 1989	American Academy of Arts and Sciences, Kistiakowsky Lecturer at the University of New Hampshire American Academy of Arts and Sciences Kistiakowsky Lecturer at Lehigh University

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Throughout
1988-89

Member and Participant in the National Academy of Science committee on Contributions of Behavioral and Social Science to the Prevention of Nuclear War

Member and Participant in the American Academy of Arts and Sciences Committee on International Security Studies

Senior Advisor to the WGBH television series on War and Peace in the Nuclear Age

HARVEY M. SAPOLSKY

July 1988

"Military Support for Academic Research in the United States," paper at the joint meetings of U.S. and British History of Science Societies, Manchester, England

November 1988

"Politics of Weapon Acquisition Corruption," Political Science Seminar, Washington University, St. Louis

December 1988

Organizer, "Trends in Defense Communications," MIT Communications Forum, Cambridge, Massachusetts

March 1989

"Politics of Weapon Acquisition Corruption," seminar presentation, Center for International Affairs, Harvard University, Cambridge, Massachusetts

April 1989

Participant, Workshop on Organizational Theory and Nuclear Forces, National Research Council, National Academy of Sciences, Washington, D. C.

JONATHAN SHIMSHONI

October 1988

Public Lecture, the Woodrow Wilson School, Princeton University, Princeton, New Jersey, entitled "Reflections on the Palestinian Uprising"

November 1988

Public Lecture, the Jewish Federation of Lee County, Florida, entitled "Reflections on the Palestinian Uprising"

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November 1988 Seminar, the Center for International Affairs,
Harvard University, Cambridge, "A Strategic
Analysis of the Palestinian Uprising"

December 1988 Public Lecture, the New Jersey Jewish Center,
Princeton, New Jersey on "The Israeli
Elections, 1988"

 Seminar, "Strategic Analysis of the Palestinian
Uprising" at Hebrew College, Brookline, MA

January 1989 Public Lecture, "The Palestinian Uprising and
Current Political Crises in Israel," Temple
Beth Shalom, Cambridge, MA

February 1989 Seminar, the Woodrow Wilson School, Princeton
University, Princeton, New Jersey, "1914 and
the Cult of the Advantage: A Case Against
Technological Determinism"

RAJU G. C. THOMAS

September 1988 "Nuclear Deterrence and India," paper presented
on the panel, "The Theory and Practice of
Nuclear Deterrence," at the International
Political Science Association Convention,
Washington, D. C.

January 1989 Talk, "Indian Nuclear Policy and the NPT,"
given to members of the Institute for Defence
Studies and Analyses and the Indian Council of
World Affairs, Sapru House, New Delhi, India

 Discussant and commentator, the Conference on
Indo-American Relations, India International
Center, New Delhi, India

February 1989 Talk, "Issues in South Asian Security," given
at the U.S. Army War College, Carlisle
Barracks, Pennsylvania

March 1989 Speaker, the Kennedy School of Government,
Harvard University, "Should India Sign the
NPT?"

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April 1989

"India and the Non-Proliferation Treaty," paper presented on the panel, "Issues in South Asian Security," International Studies Association Convention, London, England

"Dual-Use Technology Transfers: The Indo-American Relationship," paper presented on the panel "International Weapons and Technology Transfers," ISA Convention, London

"Security Considerations in Nehru's Foreign Policy," paper presented at a conference entitled, "Nehru Remembered: A Centenary Celebration," Queens College, New York

"Security Considerations in Nehru's Foreign Policy," paper presented at conference on, "The Nehru Legacy: A Centennial Assessment" held jointly by the Asia Society and the University of California at Los Angeles

"Should India Sign the NPT?", talk given at the Center for International and Strategic Affairs, University of California at Los Angeles

May 1989

"Inter-Service Rivalry and Indian Naval Expansion," talk given at the National Defense University, Washington, D. C.

Speaker, the U.S. Army War College, Carlisle Barracks, Pennsylvania, "U.S. Strategic Policy in South Asia"

